500 210-5401

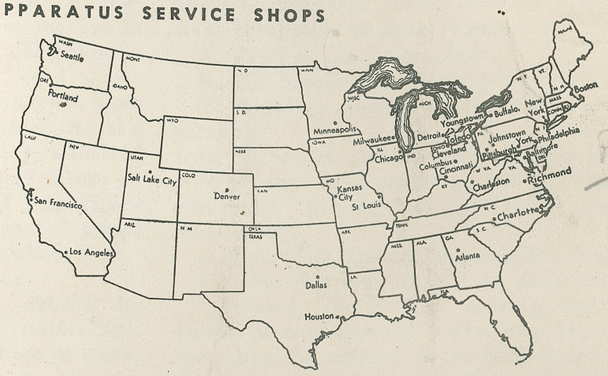
175.65
9/26/54

Electronics Division
PO 5256

WHEN YOU NEED SERVICE

IF YOU NEED TO REPAIR, recondition, or rebuild any electric apparatus, a G-E service shop near you is available day and night, seven days a week, for work in the shops or on your premises. Latest factory methods and genuine G-E renewal parts are used to maintain the original performance of your G-E equipment. For full information about these services, contact the nearest service shop or sales office listed below:

APPARATUS SERVICE SHOPS



Atlanta—Chamblee, Ga.....4639 Peachtree Indus. Blvd.
Baltimore 30, Md.....920 E. Fort Ave.
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Buffalo 11, N. Y.....318 Urban St.
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Charlotte, N. C.....2328 Thrift Road
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Cincinnati 2, Ohio.....444 W. Third St.
Cleveland 4, Ohio.....4966 Woodland Ave.
Columbus 15, Ohio.....213 Cozzens St.
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Denver 5, Colo.....3353 Larimer St.
Detroit 2, Mich.....5950 Third Ave.
Houston 20, Texas..5534 Harvey Wilson Drive
Johnstown, Pa.....841 Oak St.
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Los Angeles 1, Calif.....6900 Stanford Ave.
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Minneapolis 12, Minn.....2025 49th Ave., N.
New York 14, N. Y.....416 W. 13th St.
Philadelphia 23, Pa.....429 N. Seventh St.
Pittsburgh 6, Pa.....6519 Penn Ave.
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Buffalo 3, N. Y.....535 Washington St.
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Cedar Rapids, Iowa.....210 Second St., S.E.
Charleston 28, W. Va..306 MacCorkle Ave., S.E.
Charlotte 1, N. C.....200 S. Tryon St.
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Dayton 2, Ohio.....118 W. First St.
Denver 2, Colo.....650 Seventeenth St.
Des Moines 9, Iowa.....505 W. Fifth Ave.
Detroit 2, Mich.....700 Antoinette St.
Duluth 2, Minn.....14 W. Superior St.
Elmira, N. Y.....Main and Woodlawn Aves.
El Paso, Texas.....109 N. Oregon St.
Erie, Pa.....1001 State St.
Eugene, Ore.....29 W. Eleventh St.
Evansville 19, Ind.....123 N.W. Fourth St.
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Fergus Falls, Minn.....108 N. Court St. P.O. Box 197
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Grand Rapids 2, Mich..148 Monroe Ave., N.W.
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Greenville, S. C.....108 W. Washington St.
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Harrisburg, Pa.....300 N. Second St.
Hartford 3, Conn.....410 Asylum St.
Houston 1, Texas.....1312 Live Oak St.
Huntsville, Ala.....1107 Times Bldg.
Indianapolis 4, Ind.....110 N. Illinois St.
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Jackson 1, Miss.....203 W. Capitol St.
Jacksonville 2, Fla.....700 E. Union St.
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Knoxville 08, Tenn.....602 S. Gay St.
Lansing 8, Mich.....106 W. Allegan St.
Lexington, Ky.....First National Bank Bldg.
Lincoln 8, Nebr.....1001 "O" St.
Little Rock, Ark.....103 W. Capitol Ave.
Los Angeles 54, Calif.....212 N. Vignes St.
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Madison 3, Wisc.....16 N. Carroll St.
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Mobile 13, Ala.....54 St. Joseph St.
Montgomery 4, Ala.....205 Montgomery St.
Nashville 3, Tenn.....234 Third Ave., N.
Newark 2, N. J.....744 Broad St.
New Haven 6, Conn.....129 Church St.
New Orleans 12, La.....837 Gravier St.
New York 22, N. Y.....570 Lexington Ave.
Niagara Falls, N. Y.....253 Second St.
Norfolk 10, Va.....229 W. Bute St.
Oakland 12, Calif.....409 Thirteenth St.
Oklahoma City 2, Okla....119 N. Robinson St.
Omaha 2, Nebr.....409 S. Seventeenth St.
Paducah, Ky...P.O. Box 1001, 231 S. Fourth St.
Pasco, Wash.....421 W. Clark St.
Peoria 2, Ill.....309 Jefferson Bldg.
Philadelphia 2, Pa.....1405 Locust St.
Phoenix, Ariz..P.O. Box 4037, 303 Luhrs Tower
Pittsburgh 22, Pa.....535 Smithfield St.
Portland 3, Maine.....477 Congress St.
Portland 7, Ore.....920 S.W. Sixth Ave.
Portsmouth, Ohio..P.O. Box 37, 721 Sixth St.
Providence 3, R. I.....Industrial Trust Bldg.
Raleigh, N. C.....336 Fayetteville St.
Reading, Pa.....31 N. Sixth St.
Richmond 17, Va.....700 E. Franklin St.
Riverside, Calif.....3808 Main St.
Roanoke 16, Va....920-924 S. Jefferson St.
Rochester 4, N. Y.....89 E. Ave.
Rockford, Ill.....110 S. First St.
Rutland, Vt.....38½ Center St.
Sacramento 14, Calif.....626 Forum Bldg.
Saginaw, Mich.....501 Bearinger Bldg.
St. Louis 2, Mo.....112 N. Fourth St.
Salt Lake City 9, Utah.....200 S. Main St.
San Antonio 5, Texas....310 S. St. Mary's St.
San Diego 1, Calif.....1240 Seventh Ave.
San Francisco 6, Calif....235 Montgomery St.
San Jose 10, Calif.....460 Park Ave.
Savannah, Ga.....4 E. Bryan St.
Seattle 4, Wash.....710 Second Ave.
Shreveport, La.....1513 Line Ave.
Sioux City 13, Iowa..572 Orpheum Electric Bldg.
Sioux Falls, S. D.....306 South Phillips Ave.
South Bend 1, Ind.....112 W. Jefferson Blvd.
Spokane 8, Wash.....S. 162 Post St.
Springfield, Ill.....607 E. Adams St.
Springfield 3, Mass.....1387 Main St.
Stockton, Calif.....11 So. San Joaquin St.
Syracuse 2, N. Y.....113 S. Salina St.
Tacoma 1, Wash.....1202 Washington Bldg.
Tampa 6, Fla.....1206 North A St.
Toledo 4, Ohio.....420 Madison Ave.
Trenton 8, N. J.....214 E. Hanover St.
Tulsa 3, Okla.....320 S. Boston Ave.
Tuscon, Ariz..P.O. Box 710, 650 N. Sixth Ave.
Utica 2, N. Y.....258 Genesee St.
Washington 5, D.C.....777–14th St., N.W.
Waterbury 89, Conn.....111 W. Main St.
Waterloo, Iowa.....206 W. 4th St.
Wheeling, W. Va.....40 Fourteenth St.
Wichita 2, Kan.....200 E. First St.
Williamston, N. C.....City Hall
Wilmington 98, Del.....1326 N. Market St.
Worcester 8, Mass.....507 Main St.
York, Pa.....56 N. Harrison St.
Youngstown 5, Ohio....272 E. Indianola Ave.

Hawaii: American Factors, Ltd., P. O. Box 3230, Honolulu 1 Canada: Canadian General Electric Company, Ltd., Toronto

POWER TRANSFORMER DEPARTMENT, GENERAL ELECTRIC COMPANY, PITTSFIELD, MASS.
6-52 (4M)
9-53 (3M)
Supersedes GEI-26080B
Litho in U.S.A.

Capacitors

INSTRUCTIONS

GEI-26080C

Propty
BE Kingsbury

Cat. 12-B-58
net 361.00
list 592.00
mfg. 175.65

TYPE CW

CARRIER-CURRENT

COUPLING CAPACITORS

450

GE Pitt
Attn Harold Talley
Warehouse Service

Cat 12B58
0.0032 μfd
max. work V. 46 KV
GEI 26080

GENERAL ELECTRIC

TYPE CW CARRIER-CURRENT COUPLING CAPACITORS

INTRODUCTION

The Type CW carrier-current coupling capacitor is used to couple carrier-current equipment to transmission lines. It is also used in series with a potential device for supplying moderate potential to instrument or synchronizing devices. When desirable the capacitor can perform both of these operations simultaneously.

SHIPMENT

CAPACITOR UNITS

Because the units have a gas-filled expansion chamber in the top, it is essential that they be kept in a VERTICAL position to prevent the gas from mixing with the dielectric.

The crates in which the units are shipped specify that the units must be kept VERTICAL during shipment. The customer should take particular care to see that the units are kept vertical at all times after they are received.

If a unit is accidentally turned on its side, or upside down, it should be immediately placed upright. Before applying voltage to the unit, a General Electric Company representative should be advised of the length of time the unit was in the wrong position.

All necessary bolts, nuts, lock washers, and connector strips for fastening the units together are shipped with the units.

PEDESTAL BASE

The base is shipped with the drainage coil, protective gap, grounding switch, and grounding terminal assembled. A gasket for use between the base and the bottom unit is tied to the base. Included is a tubular connecting adapter for connecting the low voltage carrier-frequency outlet of the capacitor to the carrier circuit within the base. Also included is a terminal for the connection of the central conductor of a concentric cable lead-in and a connector for grounding the shielding braid to the base.

When a single-conductor carrier lead-in bushing is specified, it is shipped separately with a terminal for its connection and sufficient compound for compounding the carrier lead into the bushing.

PRECAUTIONS

To prevent damage to the units or loss of the contributing parts, the units should not be unpacked until they have been delivered to the site of installation.

If oil leakage is noted after unpacking, a General Electric Company representative should be notified before any measures are taken to stop the leak.

The expansion chamber in the top of the capacitor unit has been carefully sealed with inert gas at the factory. To prevent the loss of this gas the sealing plug and the center bolt in the top of the cover plate should not be disturbed or subjected to any tampering.

The unit must be kept vertical at all times.

DESCRIPTION

CAPACITOR UNIT

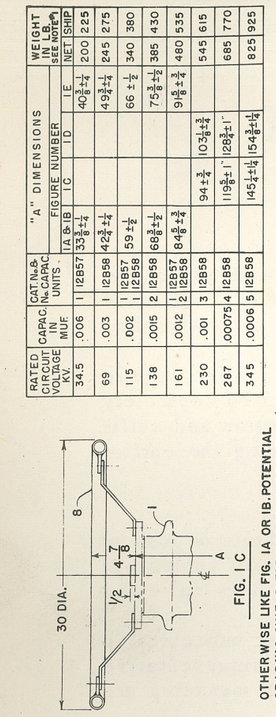
The units are furnished in two sizes, for rated circuit voltages of 34.5 kv and 69 kv respectively. The capacitances of the two units are so proportioned as to permit them to be assembled in series for various ratings. The units consist of a plurality of paper and foil rolls enclosed in an oil-filled porcelain shell equipped with metal closing plates on each end. This construction permits assembly of a number of units in series for the various rated circuit voltages.

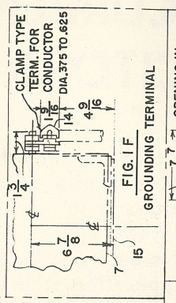
The capacitor units can be arranged for base or suspension mounting on either a potential device or pedestal base.

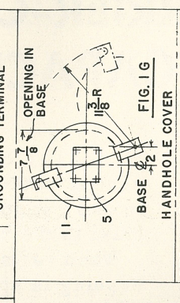
These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes, the matter should be referred to the General Electric Company.

GENERAL ELECTRIC

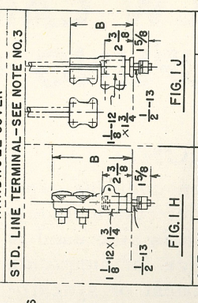
RATED VOLTAGE KV.	CAPAC. IN MUF.	CAT.No.& NO. OF UNITS	"A" DIMENSIONS FIGURE NUMBER 1A & 1B	1C	1D	1E	WEIGHT LBS. APPROX. SEE NOTE #1 NET	SHIP
34.5	.006	1 12857	33 3/8 ± 1/4			40 3/8 ± 1/4	200	225
69	.003	1 12858	42 3/4 ± 1/4			49 3/4 ± 1/4	245	275
115	.002	1 12857 1 12858	59 ± 1/2			66 ± 1/2	340	380
138	.0015	2 12858	68 3/8 ± 1/2			75 3/8 ± 1/2	385	430
161	.0012	2 12857 2 12858	84 5/8 ± 3/4			91 5/8 ± 3/4	480	535
230	.001	3 12858	94 ± 3/4		103 ± 3/4		545	615
287	.00075	4 12858	119 5/8 ± 1/8		128 3/4 ± 1/8		685	770
345	.0006	5 12858	145 1/4 ± 1 1/4		154 3/4 ± 1 1/4		825	925



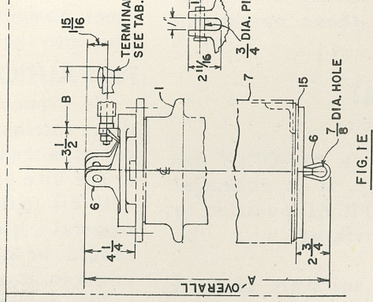


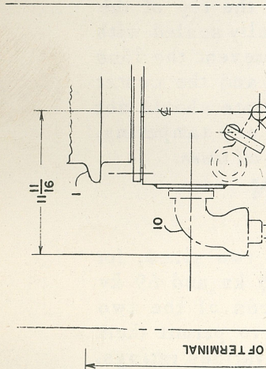


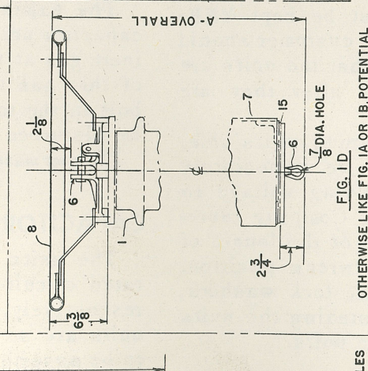
STD. LINE TERMINAL—SEE NOTE NO.3



CAT. NO.	FIG. NO.	CONDUCTOR	B
4B 190	1 H	.25 To .6875	6 1/8
4B 191	1 J	.682 To .892	5 3/16
4B 192	1 J	.965 To 1.153	6 3/16
4B 193	1 J	1.289 To 1.413	6 1/16







NOTE #1. FOR WEIGHT IN LB. OF SUSPENSION MOUNTING ADD 16 LB. NET & 19 LB. SHIP TO WT. IN TABULATION.

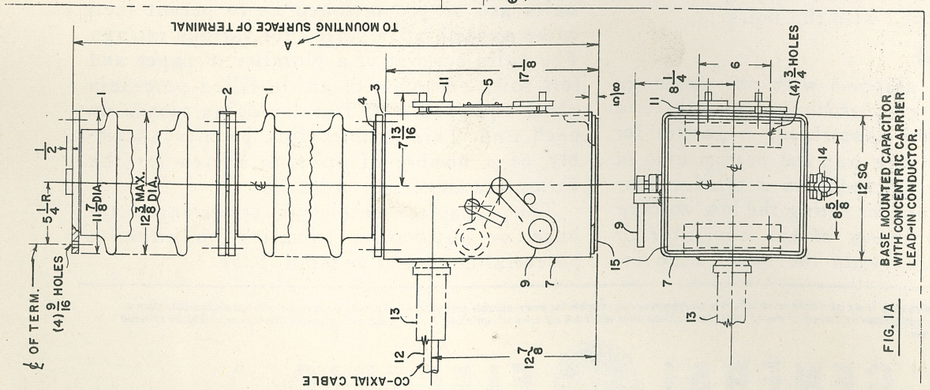
NOTE# 2. IMPEDANCE MATCHING TRANS. CAT. No. 7772474G1 MAY BE MOUNTED IN BASE. (SEE GEI-29268)

NOTE# 3. TERMINALS & CAPACITORS TO BE ORDERED SEPARATELY.

NOMENCLATURE

1. CAPACITOR UNIT
2. CONTACT STRIP
3. GASKET
4. CAPACITOR UNIT NAMEPLATE
5. CARRIER CURRENT COUPLING CAPACITOR (NAMEPLATE
6. SUPPORT CHANNEL (CAT. No. 12 B 39)
7. PEDESTAL BASE (CAT. No. 12 B 71 To 74)
8. GRADING SHIELD
9. GROUND SWITCH
10. ENTRANCE BUSHING & ACCESS. (CAT. No. 8315277G4)
11. LOW VOLTAGE TERMINAL
12. CONDUCTOR & TERMINAL
13. CUSTOMERS ADAPTER & CONDUIT TO 2½ PIPE TAP
14. GROUNDING TERMINAL FOR 4/0 COND. SOLID OR STRANDED.
15. DUST COVER

FIG. 1. CARRIER CURRENT COUPLING CAPACITORS (WITH PEDESTAL BASE)



PEDESTAL BASE

The base is furnished for mounting the units when a potential device is not supplied. A drainage coil, a protective gap, and grounding switch are factory-mounted inside. The switch is permanently assembled in the base at the factory. It is operated externally by means of a switch hook. There is a spark gap mounted on the drainage coil which is adjusted for a spacing of 0.015 inch. This setting limits the maximum voltage on the carrier lead-in. Under certain extreme conditions of transmitter power, line voltage, or carrier frequency, this setting may have to be increased slightly to prevent sparkover from carrier transmitter voltage. Provision is made for mounting a matching transformer inside the base when one is necessary.

An opening is provided on the side to accommodate either a single conductor or concentric carrier lead. A hand-hole opening is provided in the opposite side of the base through which internal connections can be made.

NAMEPLATE

A nameplate attached to the bottom end plate of each unit gives its serial number, catalog number, measured capacitance, and maximum working voltage. There is also an overall nameplate attached to the pedestal base. This nameplate gives the catalog number and the circuit rating of the complete capacitor including the nominal capacitance.

Reference should be made to the serial number in all correspondence relating to a particular unit.

INSTALLATION

PEDESTAL BASE WITH SINGLE CONDUCTOR CARRIER, LEAD-IN CONDUCTOR (SEE FIGS. 1B, 1E, 3 AND 5)

The base should be bolted securely in its final position (four 5/8-inch bolts are required) and grounded solidly with the grounding terminal (19).

Compound the terminal lead into the entrance bushings, using the compound packed separately for this purpose. To accomplish this, the leads should be passed through the porcelain, leaving sufficient length to make connection to the switch, and should be dammed off at the small end of the porcelain with tape. Heat the compound to 250 C and pour into the large end of the porcelain until the porcelain is full. After the compound has cooled, remove the tape on the small end of the porcelain and assemble the lead-in bushing to the base by means of the ring (15), bolts (16), and gasket (23).

PEDESTAL BASE WITH CONCENTRIC CARRIER LEAD-IN CONDUCTOR (SEE FIGS. 1C, 1D, 4 AND 6)

The base should be bolted securely in its final position (four 5/8-inch bolts are required) and grounded solidly by means of the grounding terminal (19).

Use a suitable reducing adapter (13) to fit the conduit to be used. Pull the carrier lead (12) through the conduit, remove part of the outer jacket to expose the shielding braid or outer conductor and ground it to the grounding stud (19) by means of the grounding clamp (21). (See the carrier instruction for connecting the terminal on the end of the cable to the matching transformer and also for splicing and terminating the concentric carrier current lead-in conductor.)

MOUNTING CAPACITOR UNIT ON PEDESTAL BASE (SEE FIGS. 1D, 1E, 5, AND 6)

Assuming that the base has been installed according to instructions, assemble the lower carrier-current coupling unit on the base with gasket (5) between the unit and base, using the bolts and lock washers provided. Disconnect connecting strap (3) from the low voltage terminal located in the bottom of the unit by removing the two small screws holding it in place. Thread the connecting adapter (22) (furnished with the base) into the bottom end of the center conductor of the low voltage terminal located in the bottom end plate of the capacitor unit, using one of the lock washers previously used with the connecting strap. Make the connection between the connecting adapter and the grounding switch, using the lead (17) provided.

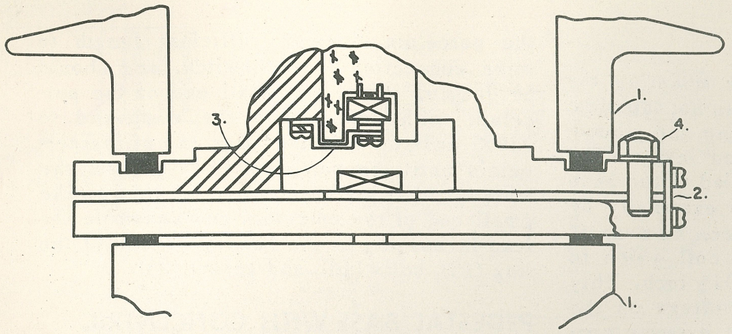


FIG.2. RIGID COLUMN CONNECTION BETWEEN UNITS

1. CAPACITOR UNIT
2. CONTACT STRIP
3. CONNECTOR STRIP & BOLTS
4. CONNECTING BOLT & SPG. WASHER

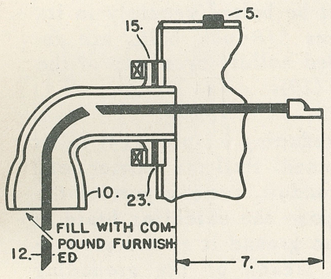


FIG.3. BASE WITH SINGLE LEAD-IN CONDUCTOR

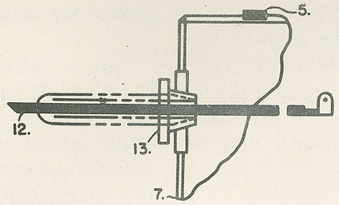


FIG.4. BASE WITH CONCENTRIC CARRIER LEAD-IN CONDUCTOR

5. GASKET
7. PEDESTAL BASE
10. ENTRANCE BUSHING
12. CONDUCTOR & TERMINAL
13. CUSTOMERS ADAPTER & CONDUIT TO 2½ PIPE TAP
15. RING
16. (3) HEX. HD. SCRS.
23. GASKET

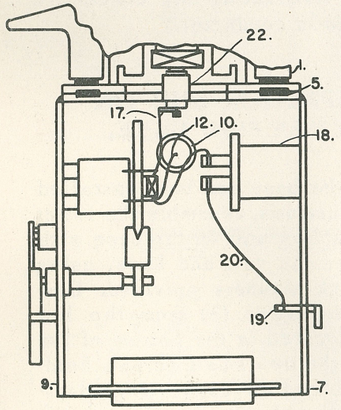


FIG.5. BASE CONNECTIONS FOR SINGLE LEAD-IN CONDUCTOR

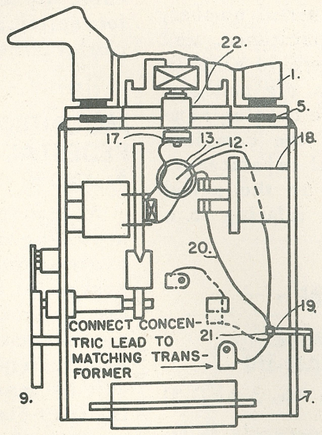


FIG.6. BASE CONNECTIONS FOR CONCENTRIC CARRIER LEAD-IN CONDUCTOR

1. CAPACITOR UNIT
5. GASKET
7. PEDESTAL BASE
9. GRD. SWITCH
10. ENTRANCE BUSHING
12. CONDUCTOR & TERMINAL
13. CUSTOMERS ADAPTER
17. STACK CONN.
18. DRAINAGE COIL
19. GRD. STUD
20. GRD. CONN.
21. GRD. CLAMP
22. CONNECTOR

CAPACITOR CONNECTIONS OUTLINE

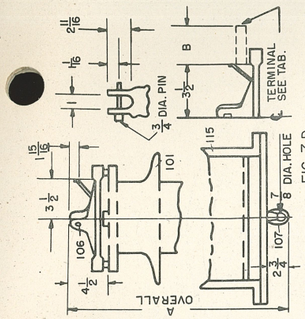


FIG. 7D

OTHERWISE LIKE FIG. 7A OR 7B, SUSPENSION MOUNTED CAPACITOR WITH SUSPENSION HANGER

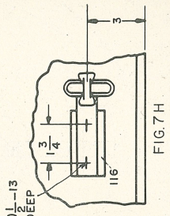


FIG. 7H
GROUNDING TERMINAL

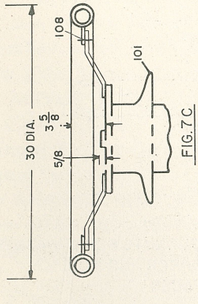


FIG. 7C

OTHERWISE LIKE FIG. 7A OR 7B, POTENTIAL GRADING SHIELD FOR 230 KV & ABOVE (BASE MOUNTED)

FIG. 7F

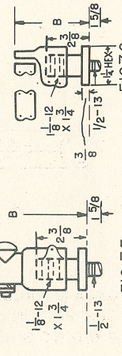


FIG. 7G

CAT. NO.	FIG. NO.	CONDUCTOR	B
4B190	7F	.25 TO .6875	6 9/16
4B191	7G	.682 TO .892	5 7/16
4B192	7G	.965 TO 1.153	6 9/16
4B193	7G	1.289 TO 1.413	6 9/16

NOTE 1 (4) 1/2"-13 FOR OPTIONAL LOCATION OF LINE TERMINAL

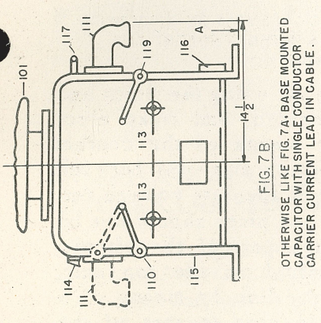


FIG. 7B

OTHERWISE LIKE FIG. 7A BASE MOUNTED CAPACITOR WITH SINGLE CONDUCTOR CARRIER CURRENT LEAD IN CABLE.

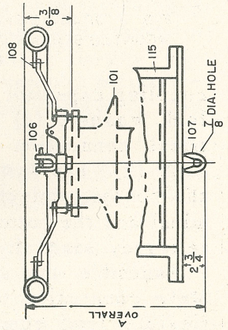


FIG. 7E

OTHERWISE LIKE FIG. 7A OR 7B, POTENTIAL GRADING SHIELD, HANGER & TIE DOWN FOR SUSPENSION MOUNTED 230 KV & ABOVE.

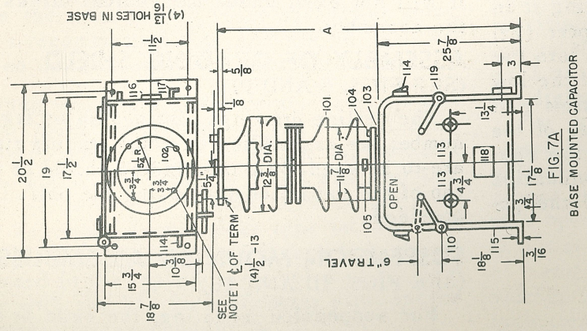
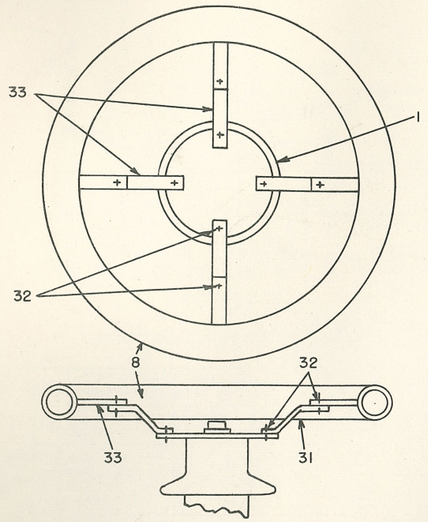


FIG. 7A
BASE MOUNTED CAPACITOR

NOMENCLATURE

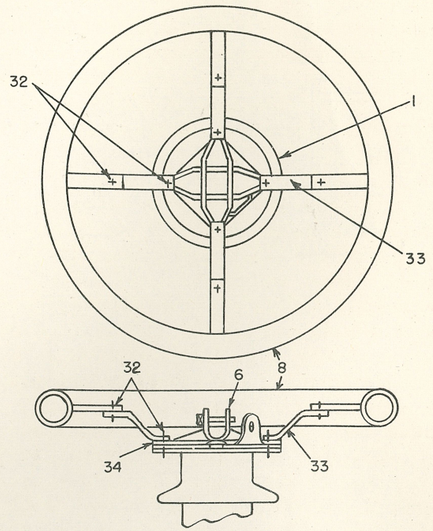
101 CAPACITOR UNIT
102 TERMINAL STUD
103 GASKET
104 CAPACITOR UNIT NAMEPLATE
105 CARRIER CURRENT COUPLING CAPACITOR N.P.
106 SUSPENSION HANGER & CLEVIS
107 TIE DOWN
108 GRADING SHIELD
110 POTENTIAL DEVICE GROUNDING SWITCH
111 ENTRANCE BUSHING
113 FOR CARRIER CURRENT CONCENTRIC CABLE WHEN USED 1-½ NPT (FEEMALE)
114 LIFTING LUG FOR LIFTING COMPLETE UNIT
115 POTENTIAL DEVICE
116 GROUNDING TERMINAL CLAMP, TYPE FOR 110 AWG TO 300 MGM CABLE (.325-.631" DIA.)
117 BREATHER
118 NAMEPLATE
119 CARRIER CURRENT GROUNDING SWITCH.

| RATED CIRCUIT VOLTAGE KV. | TYPE & NO. CAPACITOR UNIT | FIGURE NUMBER | WEIGHT IN LBS. | "A" DIMENSION | | |



1 CAPACITOR UNIT
8 GRADING SHIELD
31 CAPACITOR UNIT COVER
32 BOLT, NUT & SPG. WASHER
33 SUPPORTING ROD

FIG. 8 GRADING SHIELD ASSEMBLY ON BASE MOUNTED STACK WITH & WITHOUT POTENTIAL DEVICE



1 CAPACITOR UNIT
6 SUSPENSION ACCESS
8 GRADING SHIELD
32 BOLT, NUTS & SPG. WASHER
33 SUPPORTING ROD
34 SPACER

FIG. 9 GRADING SHIELD ASSEMBLY ON SUSPENSION MOUNTED STACK WITH & WITHOUT POTENTIAL DEVICE

MOUNTING CAPACITOR UNIT ON POTENTIAL DEVICE (SEE FIGS. 5, 6, 7D AND 7E)

See separate potential device instructions for all matters pertaining to the potential device.

Assemble the lower carrier-current coupling unit on the potential device, using the bolts and lock washers provided. Disconnect the connecting strap (3) from the low voltage terminal located in the bottom of the unit by removing the two small screws holding it in place. Thread the connecting adapter (22) (furnished with the potential device) into the bottom end of the center conductor of the low voltage terminal located in the bottom end plate of the capacitor unit, using one of the lock washers previously used with the connecting strap (3). Make electrical connection between the connecting adapter and the potential device.

MOUNTING THE ADDITIONAL CAPACITOR UNITS (SEE FIGS. 1A OR 7A AND 2)

Assemble the remaining carrier-current coupling capacitor units, using the bolts and lock washers (4) provided, and make electrical connection by means of the contact strip (2). The connecting strap (3) between the center conductor of the low voltage terminal and the bottom end plate should not be removed, since it is a part of the circuit.

Assemble the terminal on the top unit. Make connection to the line by means of a flexible lead equal in size to that of the lines, so arranged with generous bends that it will not exert undue mechanical stress on the assembly.

ASSEMBLY OF GRADING SHIELD (SEE FIGS. 8 AND 9)

The outline drawings distinguish by figure number the assemblies on which grading rings are to be used. Bolt the grading shield to the top of the capacitor unit, using the bolts (32) provided.

SUSPENSION MOUNTED ASSEMBLIES (SEE FIGS. 1D AND 1E)

For suspension mounting, the base or potential device should be placed on a temporary structure that is both level and stable, where the assembly of the capacitors can be completed without danger of overturning. Proceed with the capacitor assembly as covered in the preceding sections of this instruction.

Bolt the clevis type hanger accessory securely to the top of the uppermost capacitor unit using the bolts, spacers, and washers shipped with the suspension mounting accessories. Attach the terminal to the hanger. The assembly should then be suspended by means of the pin and clevis. The suspension member used should be flexible so as to allow free movement of the capacitor assembly to prevent undue mechanical strain.

Connect the terminal on the suspension hanger to the line by means of a flexible lead equal in size to that used for the line, and so arranged with generous bends that it will not exert undue mechanical strains on the assembly.

The base or potential device should be grounded solidly by means of the grounding terminal (19). Attach the tied-down connector to the base or potential device. Tie down the assembly to a suitable anchor with a flexible member to prevent undue swing of the assembly.

INSTALLATION OF SUPPLY PARTS FOR CENTER CLAMPED CAPACITORS

Center clamped coupling capacitors (Cat. 12B57 and Cat. 12B58) may be used in replacement for and in combination with older flanged clamped capacitors (Type CW-1A, CW-7 and CW-8).

In the assembly of older and newer units, it is recommended that spacers be used between units to obtain proper clearances.

When installing either center clamped unit (Cat. 12B57 or 12B58) on top of a flanged clamped unit, the 3 inch bolt of supply parts Cat. 4B551G1 should be used with the 1/2 inch diameter pipe spacer between units. In the assembly of the older type on top of a center clamped unit, the 2 ½ inch bolt should be used in the tapped cover holes of the new unit with the 1/2 inch diameter pipe spacer between the two capacitors.

For references see Fig. 10.

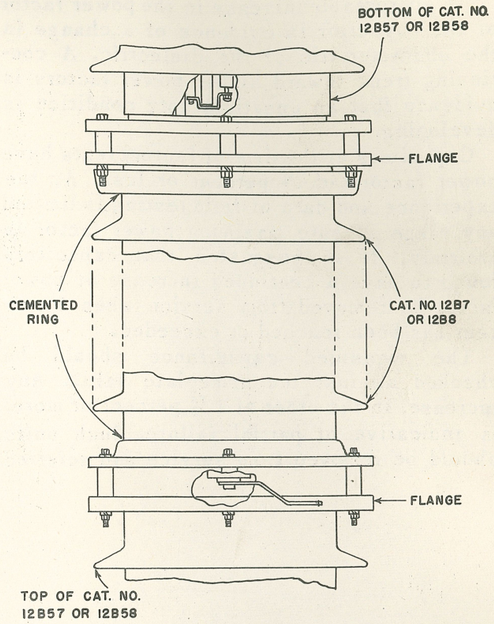


FIG. 10. H.V. CAPACITOR UNIT OUTLINE

MAINTENANCE

Type CW capacitors require little, if any, maintenance. Continued satisfactory operation in the tuned carrier circuits generally indicates that the dielectric is in good condition.

If difficulties in operation should indicate trouble, or if it is desired to determine the capacitor suitability for continued service, measurements of the power factor of the capacitor dielectric, under applied voltage of approximately line frequency, (60 cycles usually) is the most significant and most widely used method of investigating the condition of the dielectric of capacitors.

For voltage below operating level, the power factor is not usually affected by the voltage at which measurement is made. Increase in measuring voltage above the maximum operating voltage may result in increase in power factor, as the result of the formation of external corona. High power factor at a voltage low enough to avoid corona usually indicates presence of moisture or contamination of the dielectric.

An appreciable increase in the power factor of the capacitor is evidence of a change in the characteristic of the dielectric. A continuing trend toward higher power factors is evidence that an unsatisfactory condition is developing.

Capacitors at the time of factory tests have power factors of .5 percent or less. As the experience and data of field testing is limited any range of safe maximum power factor is arbitrary. It is suggested that capacitors found to have a continued increase of power factor be removed from service when 1 percent has been reached or exceeded.

The measured capacitance should be checked against the nameplate value. Any increase, in the order of 1 ½ percent or more, is indicative of partial failure. Such units should be removed from service and referred to the factory.

In order to properly evaluate the condition of the dielectric, the following conditions must be applied at time of tests.

A. Weather should be clear.

B. Air temperature should be above 10 C.

C. Relative humidity should be below 80 percent.

D. To avoid condensation, the porcelain, as measured by thermometer, in contact with porcelain, should not be less than air temperature.

E. Porcelain should be clean and dry.

F. Line terminal should be disconnected.

G. Guard circuit of testing equipment should be connected to a wire wrapped around the porcelain surface at the bottom and above the lower metal hardware. This will eliminate surface-leakage current.

500 210-5901

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